UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,784	01/15/2002	Philip Y.W. Tsui	155609-0037	2745

1622　　7590　　11/30/2004		EXAMINER

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ART UNIT	PAPER NUMBER
2685	

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/051,781	TSUI, PHILIP Y.W.
	Examiner	**Art Unit**
	Lana N Le	2685

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _15 January 2002_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-23_ is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) _15-21_ is/are allowed.

6)☒ Claim(s) _1,6,9,11,13,14 and 22_ is/are rejected.

7)☒ Claim(s) _2-5, 7-8, 10, 12 and 23_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☐ All　b)☐ Some * c)☐ None of:

　　　　1.☐ Certified copies of the priority documents have been received.

　　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

2.   Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite

for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

- claim 4 recites the limitation "the first and second predetermined amounts" and

"the lower threshold value" in lines 1-2, it should depend on claim 2. There is

insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 1, 6, 9, 11, and 13-14 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Eisfeld et al (US 5,790,948) in view of Tigwell (US 6,021,319).

Regarding claim 1, Eisfeld discloses a universal transmitter (11; fig. 1)

comprising:

a central processing unit (20) and a radio frequency circuit (18a-18n) coupled to

the CPU 20;

the RF circuit (10a-10n of fig. 1 col 3, lines 46-58; 18a-18n of fig. 5), in response

to the plurality of digital outputs, to generate and transmit a local RF signal at antenna

118 (fig. 5; col 5, lines 41-52) at a corresponding plurality of discrete frequencies;

the CPU (20 of fig. 1; 90 of fig. 5) to sample the signal at the plurality of scanning

frequencies and to determine the target frequency of the template RF signal in response

to the plurality of samples and transmitting at a plurality of scanning frequencies (col 7,

lines 1-20).

However, Eisfeld fails to further disclose:

an input circuit including an antenna coupled to a central processing unit;

said input circuit to receive the local RF signal and a template RF signal

including a target frequency and a modulation pattern from template remote transmitter,

and to mix the local RF signal received and the template RF signal and provide a mixed

signal.

Tigwell discloses an input circuit (109', 113') including an antenna 109' coupled

to a central processing unit 120', 140' (see fig. 1B);

said input circuit (109', 113') to receive the local RF signal and a template RF

signal including a target frequency and a modulation pattern from template remote

transmitter (not shown in figure 1B but similar to 102 of fig. 1A; col 8, lines 62-66; col 5,

lines 18-20), and to mix the local RF signal received via 114 and the template RF signal

and provide a mixed signal at the output of 114 (col 8, lines 44-50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the universal transmitter of Eisfeld et al receive the template RF signal from a template transmitter in order have the universal transmitter of Eisfeld learn the target frequency from the template transmitter so that it can emulate that frequency so that it will be recognized by a receiver that is actuated by the template transmitter as suggested by Tigwell (col 40-45).

Regarding claim 6, Eisfeld et al and Tigwell disclose the transmitter of claim 1 wherein Eisfeld et al disclose the CPU 90 generates the plurality of discrete digital outputs to cause the RF circuit 18 to generate and transmit the local RF signal via 118 over a frequency range (col 7, lines 1-12).

Regarding claim 9, Eisfeld et al and Tigwell disclose the transmitter of claim 1 wherein Tigwell discloses the transmitter further comprising an analog to digital converter 402 coupled between the CPU 140' and the RF circuit, said digital to analog converter 402 to detect the digital outputs of the CPU and, in response thereto, to provide an analog voltage to the RF circuit to control the scanning frequency of the local RF signal (col 3, line 52 – col 4, line 7). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have an A/D converter in order to convert the received signal from the microcontroller to a signal to be transmitted similar to the original signal.

Regarding claim 11, Eisfeld et al and Tigwell disclose the transmitter of claim 1 wherein Tigwell discloses the input circuit comprises an amplifier circuit 119' for amplifying the mixed signal and a wave shaping circuit 116. It would have been obvious

to one of ordinary skill in the art at the time the invention was made to have an amplifier and a wave shaping circuit in order to strengthen the incoming signal from the template before transferring it to the transmitter.

Regarding claim 13, Eisfeld et al and Tigwell disclose the transmitter of claim 1 wherein Eisfeld disclose the transmitter comprises a plurality of switches 26 and 28 controlled by CPU 20 (fig. 1A), and Tigwell further disclose when a switch 131 is pressed and held for a first predetermined time period (when the switch is connected to line 164), the CPU (120) learns the target frequency and modulation pattern of the template transmitter (template transmitter 102; fig. 1A; col 5, lines 18-20; col 6, lines 25-45), and stores values representative of the target frequency and modulation pattern in the non-volatile memory 153 (fig. 1A; col 5, lines 34-54). It would have been obvious to one of ordinary skill in the art at the time the invention was made to store the target frequency that was learned from the template transmitter in order for the universal transmitter to transmit at substantially the same frequency.

Regarding claim 14, Eisfeld et al and Tigwell disclose the transmitter of claim 11 wherein Tigwell further discloses when the switch 151 is pressed and held for a second predetermined time period, a CPU 140 which can be attached to CPU 120 retrieves the values representative of the target frequency and modulation pattern, associated with the switch, from the non-volatile memory and generates digital outputs to cause the RF circuit to transmit an RF signal having the target frequency and modulation pattern (col 5, lines 51-64).

Regarding claim 22, Eisfeld et al disclose a computer program product, comprising:

a computer readable program code in said computer program product within microprocessor 20 comprising:

first computer readable program code to generate a set of discrete digital outputs to cause a radio frequency (RF) circuit to generate and transmit a local RF signal at a corresponding set of discrete scanning frequencies (col 5, lines 41-52; fig. 5);

second computer readable program code to sample an input signal at the set of scanning frequencies (col 7, lines 1-20), said input signal being a function of the local RF signal; and

third computer readable program code to determine the target frequency of the template RF signal in response to the plurality of samples.

Eisfeld et al don't further disclose:

a computer usable medium having computer readable program code embodied therein to learn the target frequency and modulation pattern of a template transmitter in a universal transmitter and the input signal being a function of a template RF signal including a target frequency and modulation pattern.

Tigwell discloses a computer usable medium having computer readable program code embodied inherent within CPU 120 therein (col 7, lines 49-57) to learn the target frequency and modulation pattern of a template transmitter 102 in a universal transmitter and the input signal being a function of a template RF signal including a target frequency and modulation pattern (fig. 1A; col 5, lines 40-46; col 6, lines 25-45).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the universal transmitter of Eisfeld to learn the target frequency from a template transmitter in order to transmit at substantially the same frequency as the template so that it will be recognized by a receiver that is actuated by the template transmitter as suggested by Tigwell (col 40-45).

Allowable Subject Matter

5.   Claims 2-3, 5, 7-8, 10, 12 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 2, Tigwell and Imoto disclose the transmitter of claim 2 wherein Tigwell, Imoto, and the cited prior art fail to disclose the CPU to (i) incrementally increase the scanning frequency of the local RF signal by a first predetermined amount, starting from a lower scanning frequency, until a magnitude of the mixed signal, above a lower threshold value, is detected,

(ii) incrementally increase the scanning frequency of the local RF signal by a second predetermined amount until the magnitude of the mixed signal falls to or below the lower threshold value,

(iii) store the current scanning frequency as a first frequency;

(iv) increase the scanning frequency by a third predetermined amount;

(v) incrementally decrease the scanning frequency by a fourth predetermined increments until the magnitude of the mixed signal falls to or below the lower threshold value; (vi) store the current scanning frequency as a second frequency, and

(vii) determine the target frequency as being r between the first and second frequencies.

Regarding claim 5, Eisfeld et al and Tigwell disclose the transmitter of claim 1, wherein the cited prior art fail to disclose the CPU to sample the mixed signal at a set scanning frequency where a magnitude of the mixed signal is above a threshold value to determine the modulation pattern of the template RF signal.

Regarding claim 10, Eisfeld et al and Tigwell disclose the transmitter of claim 9 wherein Tigwell discloses the RF circuit includes a voltage controlled oscillator (VCO) 126. However, Eisfeld et al and Tigwell and the cited prior art fail to further disclose the VCO is coupled to the digital to analog converter, said VCO to control the scanning frequency in response to the analog voltage provided by the digital to analog converter.

Regarding claim 23, Eisfeld et al and Tigwell disclose the computer program product of claim 21 wherein Eisfeld et al, Tigwell, and the cited prior art fail to disclose the computer program product further comprising:

computer readable program code to provide digital outputs to incrementally increase the scanning frequency of the local RF signal by a first predetermined amount, starting from a lower scanning frequency, until a magnitude of the mixed signal, above a lower threshold value is detected;

computer readable program code to provide digital outputs to incrementally increase the scanning frequency of the local RF signal by a second predetermined amount until the magnitude of the mixed signal falls to or below the lower threshold value;

computer readable program code to store the current scanning frequency as a first frequency;

computer readable program code to provide digital outputs to increase the scanning frequency by a third predetermined amount;

computer readable program code to provide digital outputs to incrementally decrease the scanning frequency by a fourth predetermined increments until the magnitude of the mixed signal falls to or below the lower threshold value;

computer readable program code to store the current scanning frequency as a second frequency; and

computer readable program code to determine the target frequency as being between the first and second frequencies.

6.   Claim 4 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

7.   Claims 15-21 are allowable over the cited prior art.

8.   The following is an examiner's statement of reasons for allowance:

Regarding claim 15, Eisfeld disclose a method of learning a target frequency and modulation pattern of a template transmitter, comprising:

transmitting, by an radio frequency (RF) circuit, a local RF signal at a lower scanning frequency;

concurrently receiving and mixing, by an input circuit, the local RF signal and a template RF signal including a target frequency and a modulation pattern, to provide an output signal;

incrementally increasing the scanning frequency of the local RF signal, by a first predetermined amount, until a magnitude of the output signal that is above a first threshold value is detected;

incrementally increasing the scanning frequency of the local RF signal, by a second predetermined amount, until the magnitude of the output signal falls to or below a second threshold value;

storing the current scanning frequency as a first frequency;

increase the scanning frequency of the local RF signal by a third predetermined amount;

incrementally decreasing the scanning frequency of the local RF signal, by a fourth predetermined amount, until the magnitude of the output signal falls to or below a third threshold value;

storing the current scanning frequency as a second frequency;

determining the target frequency as a function of the first and second frequencies;

adjusting the scanning frequency of the local RF signal to below the first frequency or

greater than the second frequency; and sampling the output signal a plurality of times to

determine the modulation pattern of the template RF signal.

Any comments considered necessary by applicant must be submitted no later

than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on

Statement of Reasons for Allowance."

Conclusion

9.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Lana N Le whose telephone number is (703) 308-5836.

The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Edward F Urban can be reached on (703) 305-4385. The fax phone

number for the organization where this application or proceeding is assigned is 703-

872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lana Le

November 28, 2004